

(SOADAS). Eleven papers were included in a critical review of the instruments. Development histories and psychometric properties were largely adequate though each instrument was lacking in some aspect. Each instrument has its individual merits; the 8-item DTSQ, 7-item DTTQ and 6-item SOADAS offer brevity, while the 21-item Diab-MedSat offers a more detailed approach. The DTTQ and SOADAS focus specifically on tablet treatment, while the DTSQ and Diab-MedSat enable within-groups comparisons when changing treatment from tablets to insulin. **CONCLUSIONS:** The DTSQ, the Diab-MedSat, the DTTQ and the SOADAS have acceptable development histories and psychometric properties, though evidence for both could be strengthened in certain areas to fulfil the FDA's requirements. Given the differing focus/length of each instrument, selection will also depend on study objectives.

PDB56

IDENTIFYING FACTORS THAT AFFECT PATIENTS' WILLINGNESS TO PAY FOR INHALED INSULIN

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BACKGROUND: Diabetes is a common chronic condition affecting several millions of people in the United States. Insulin supplementation is essential for controlling diabetes. However, not all patients are receptive to taking injectable insulin and are therefore more likely to be noncompliant with therapy. Inhaled insulin is as efficacious as subcutaneous insulin, but patients' willingness to pay for inhaled insulin and the factors that affect their willingness to pay (WTP) are unknown. **OBJECTIVES:** To determine (1) the relationship of patient satisfaction with current insulin therapy and demographic factors on WTP for inhaled insulin, and (2) predictors of patients' WTP for inhaled insulin. **METHODS:** Exploratory cross-sectional study design using a random sample of diabetic patients from a national database. Data were collected using a mailed survey that focused on a patient satisfaction, willingness to pay, and general patient information. Patient satisfaction was measured the Patient Satisfaction with Insulin Therapy (PSIT) scale. Data were analyzed using SPSS v.15.0 with an a priori alpha of 0.05. Descriptive statistics, Point-biserial and Pearson correlations, Chi-Square analyses, and Linear and Logistic regression modeling were conducted. **RESULTS:** One hundred twenty-eight patients responded. Annual household income, type of diabetes, patient satisfaction with current insulin therapy, gender, number of insulin injections per day, and current cost of insulin therapy were found to have a significant relationship with WTP. Annual household income and patient satisfaction predict patients' WTP, X^2 (9, $N = 114$) = 27.45, $p = 0.001$. While, current cost of insulin therapy and annual income were found to be significant predictors of how much patients were willing to pay for inhaled insulin, $R^2 = 0.242$, $p < 0.05$. **CONCLUSIONS:** Patients with higher annual incomes and those who are dissatisfied with their current insulin therapy are willing to pay for inhaled insulin. Also, patients with higher annual income and higher current cost of insulin therapy are willing to pay more for inhaled insulin.

PDB57

EFFECT OF INSULIN GLARGINE OR NPH INSULIN ON TREATMENT SATISFACTION IN PATIENTS WITH TYPE 2 DIABETES MELLITUS

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OBJECTIVES: To compare treatment satisfaction (TS) associated with insulin administration in type 2 diabetes subjects

treated with either insulin glargine based regimens or Neutral Protamine Hagedorn (NPH) insulin based regimens for at least 6 months. **METHODS:** As part of a comparative, non-interventional, multi-centre, cross-sectional study in a primary care setting in Germany, patients with insulin-dependent type 2 diabetes completed the Insulin Treatment Experience Questionnaire (ITEQ), a new condition-specific instrument assessing TS, and the Diabetes Treatment Satisfaction Questionnaire (DTSQs). The ITEQ contained 28 items among seven subscales (leisure activities, psychological barriers, handling, diabetes control, dependence, weight control, sleep); forming an ITEQ total score transformed as 0 to 100, with 100 indicates high treatment satisfaction. To examine differences between the two treatment groups Mann-Whitney U tests were used. Multivariate linear regression models were performed to determine differences between treatment groups, controlling for sociodemographic and diabetes-related characteristics, respectively. **RESULTS:** Overall, 1858 individuals were enrolled in the study, and TS analyses were conducted with data from the 1,602 per protocol patients (982 insulin glargine and 620 NPH insulin). Demographic data of patients receiving either insulin glargine or NPH insulin were similar. DTSQs satisfaction score, ITEQ subscales and ITEQ total score differed between therapy regimens and were significantly higher in the insulin glargine group (DTSQs: 29.9 ± 5.5 vs. 29.2 ± 5.7 , $p = 0.01$; ITEQ total score: 71.5 ± 13.1 vs. 67.6 ± 13.9 , $p < 0.001$). Results of the regression models indicate that differences between the groups were stable after adjustment. **CONCLUSIONS:** Our results indicate that insulin glargine was associated with significant higher treatment satisfaction compared to NPH insulin among patients with type 2 diabetes. The results suggest that the use of insulin glargine provide an additional treatment benefit for type 2 patients with insulin dependent diabetes mellitus.

DIABETES/ENDOCRINE DISORDERS—Health Care Use & Policy Studies

PDB58

PREDICTION MODEL FOR BLOOD GLUCOSE OF TYPE 2 DIABETIC PATIENT

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OBJECTIVES: 1) To compare means of calories burnt by exercise, compliance, eating behavior score, diabetes knowledge, BMI and Fasting Blood Glucose (FBG) between gender controlling for age; 2) To find correlations between calories burnt by exercise, compliance, eating behavior score, diabetes knowledge, age, BMI and FBG; 3) To estimate Hierarchical Stepwise Multiple Regression Analysis (MRA) model to predict FBG. **METHODS:** A cross-sectional deductive survey by telephone interviewing and accessing clinical data were employed to investigate relationship between health behavior factors namely—calories burnt by exercise, compliance, eating behavior score, demographic data and FBG of 200 type 2 diabetes patients at Saraburi Hospital 2008, randomly generated by computer. **RESULTS:** Total sample size of 200 (100%) diabetes patients, mostly 138 (69.00%) were female, 62 (31.00%) were male with average age 59.34 ± 11.99 years, average BMI 26.79 ± 2.50 , average calories burnt per week 2777.24 ± 2420.89 , average compliance score 12.37 ± 7.13 , and average FBG 161.25 ± 54.10 . Cronbach's Alpha coefficient of Sorofman's Compliance scale for constructs "right time" and "right amount" were 0.8157, and 0.8526 respectively and Auamnoy Eating Behavior Scale was 0.7915. ANCOVA confirmed that FBG, compliance,

diabetes knowledge, eating behavior score and BMI between male and female were not significantly different when controlling for age ($p > 0.05$) however, calories burnt by exercise between male and female patients were significantly different ($p < 0.05$). Partial correlation confirmed that diabetes knowledge, calories burnt by exercise and age were inversely significantly correlated to FBG ($r = -0.51^{**}$, -0.36^{**} , -0.28^{*} with $p < 0.01$, $p < 0.01$, $p < 0.05$ respectively). MRA model proved that five factors; diabetes knowledge, calories burnt by exercise, gender, age, and BMI were the significantly predictors of FBG (Beta= -0.40 , -0.25 , -0.11 , and -0.10 with $p < 0.01$, 0.01 , 0.01 , 0.05 , 0.05 , $R^2 = 0.26$). **CONCLUSIONS:** Diabetes knowledge, calories burnt by exercise and gender were three significantly most influence factors for predicting Fasting Blood Glucose. The diabetes patients should be educated on how to cope with diabetes and to do the more exercise.

PDB59

TREATMENT PATTERNS AND GOAL ATTAINMENT FOR PATIENTS WITH TYPE 2 DIABETES

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OBJECTIVES: The goals of treatment for type 2 diabetes are to prevent diabetic complications through intervention for hyperglycaemia, hypertension and hyperlipidaemia. The aim of this study was to describe the type of treatment patients receive and their attainment of treatment goals in an unselected population of patients with type 2 diabetes. **METHODS:** In 2007, 35 GP centres in all areas of Norway (response rate 25%) had eight types of data (including laboratory tests, drug prescriptions) extracted from their electronic record systems for all patients who had consulted for type 2 diabetes in 2000 or later. Data were analysed with descriptive measures and regression techniques. **RESULTS:** There has been a trend towards lower HbA1c values since 2000, and 53% of the last recorded value was below 7%. The proportion of patients with HbA1c value below 7% was 57% for patients on one oral antidiabetic drug, but 30% for those on five drugs. At the last visit, 39% of the patients had blood pressure below 135/85, and 36% of all patients were on antihypertensive treatment. While 50% of patients without antihypertensive drug had a blood pressure below 135/85, the proportions were 36% for those on one drug and 35% for those on two drugs. While the mean total cholesterol was 5.6 mmol/l in 2000, the value was 4.9 in 2007. At the last consultation, 51% of the patients had a total cholesterol value below 5.0 mmol/l. **CONCLUSIONS:** In a general diabetes two population, glycaemic control and lipid levels have improved over the last seven years. Use of multiple oral antidiabetics is an indicator of poor glycaemic control.

PDB60

A COMPARISON OF THE MANAGEMENT OF SEVERE HYPOGLYCAEMIA IN INSULIN-TREATED DIABETES IN THREE EUROPEAN COUNTRIES: SIMILARITIES, DIFFERENCES AND RESOURCE IMPLICATIONS

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OBJECTIVES: To assess the management of severe hypoglycaemic events (SHEs) in Germany, Spain and the UK. **METHODS:** A total of 639 adults with Type 1 ($n = 319$) or insulin-treated Type 2 diabetes ($n = 320$), of median age 38 [range, 16–84] and 62 years [19–94], respectively, and with median diabetes duration of 16 [1–58] and 13 years [1–49], respectively, who had

experienced ≥ 1 SHEs (requiring external help for recovery) in the preceding 12 months provided information on diabetes history and SHE management by questionnaire. Patients were grouped by where the SHE was treated: Group 1, community (lay person); Group 2, community (health care professional); Group 3, inside hospital. **RESULTS:** A total of 69% of patients had >1 SHE/year (median, 2–3). Most events (69%) occurred at home, mainly (74%) during the day (6 a.m.–10 p.m.), most commonly because of insufficient or irregular meals (45% of patients). Most patients (168; 68%) had normal hypoglycaemia awareness (Likert scale scores; not assessed in UK); impaired hypoglycaemia awareness was commonest in Group 3 (17; 11.3%) and least common in Group 1 (11; 3.3%) ($p = 0.003$, chi-square test). Hypoglycaemic coma was commonest in Group 3 (58.7%) and least common in Group 1 (13.6%). Coma prevalence was associated with impaired awareness ($p < 0.0001$). More patients in Germany (58%) stayed in the hospital for >24 h than in Spain (16%) or the UK (28%) ($p < 0.0001$). Following a SHE, more patients in Groups 2 and 3 than in Group 1 consulted their physician, tested blood glucose more frequently, adjusted insulin dose and/or received further education. Blood glucose tests increased by 2/day (median) in the 4 weeks post-SHE and 293 (46%) patients changed insulin dose. **CONCLUSIONS:** Other than duration of in-patient stay, the frequency, cause and management of SHEs were similar across countries despite cultural and health care system differences. SHEs represent a substantial resource burden on health care systems.

PDB61

CHART AUDIT OF THE DOSE AND EFFECTIVENESS OF LONG ACTING INSULIN ANALOGUES IN AUSTRALIAN CLINICAL PRACTICE

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OBJECTIVES: Both insulin detemir and insulin glargine have been approved for reimbursement on the Australian Pharmaceutical Benefits Scheme (PBS). Prior to their listing, intermediate acting insulin isophane (NPH) was the only PBS listed basal insulin. Determination of the dose relativity from the randomised clinical trials was confounded due to strict titration algorithms and protocol requirements. Therefore to ascertain the dose relativity in clinical practice, a chart audit was conducted. **METHODS:** The audit was carried out in six practices; five specialist and one primary care. The inclusion criteria were: diagnosis of type 1 diabetes, switched to detemir or glargine between 01 October 2006 and 31 May 2007 and at least 6 months of follow-up. To ensure that there was no systematic bias, the investigator was instructed to select every n^{th} file with n being a function of the number of patients who were eligible for participation. **RESULTS:** Records were obtained on 87 patients who switched to detemir and 77 patients who switched to glargine. The baseline characteristics of patients were similar for both groups with the exception that 30% (26/87) of patients switched to detemir and 48% (37/77) of patients switched to glargine were having once daily injections of NPH. Despite a regulatory label for only once daily dosing for glargine, the audit established that 25% of glargine use was twice daily. There was no statistically significant difference in baseline pre-switch NPH doses to either detemir (0.44 to 0.45 U/kg/day) or glargine (0.45 to 0.43 U/kg/day). The dose relativity between detemir and glargine final doses was one to one. The audit also demonstrated no statistically significant difference in HbA_{1c} between detemir and glargine (8.0% & 7.8%, respectively). **CONCLUSIONS:**